SUNDSTRAND DATA CONTROL

MK-VI GROUND PROXIMITY WARNING SYSTEM

PILOT'S INFORMATION GUIDE

This information guide is intended as a general explanation of the Sundstrand MK-VI Ground Proximity Warning System. It in no way supersedes FAA Approved Data or Flight Manual Supplements, or individual Operations Manuals, Requirements, or Procedures. Each pilot should be thoroughly familiar with his or her own company policies, requirements and procedures with respect to operation of aircraft equipped with the MK-VI GPWS.

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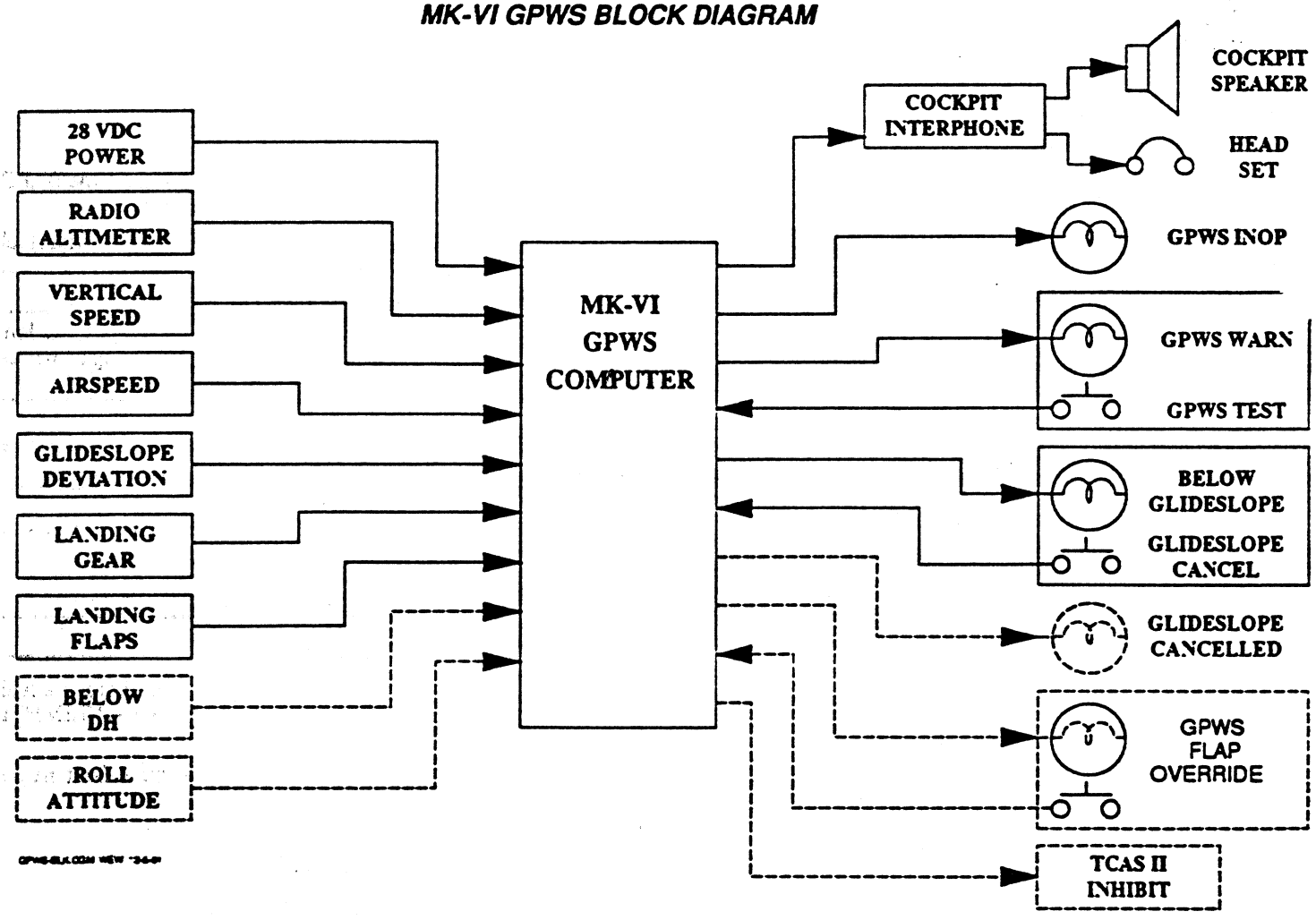
1 INTRODUCTION:

The Sundstrand MK-VI Ground Proximity Warning System (GPWS) is comprised of a MK-VI Ground Proximity Warning Computer (GPWC) and various cockpit indicator lamps and switches which receive inputs from a number of aircraft systems. The GPWC processes this information to provide visual and/or aural Alerts and Warnings to the pilot or flight crew, for protection against inadvertent flight into terrain. This is often called Controlled Flight Into Terrain (CFIT).

The MK-VI GPWS provides six different MODES of alerts and warnings. Modes One through Five correspond directly to specific types of Controlled Flight Into Terrain accidents which have occurred and been documented. Sundstrand has studied CFIT accidents for more than 20 years in the development of GPWS, and has categorized accident scenarios into these modes of flight where alerts and warnings are provided. Mode Six contains optional alerts and call-outs which serve to enhance pilot situational awareness.

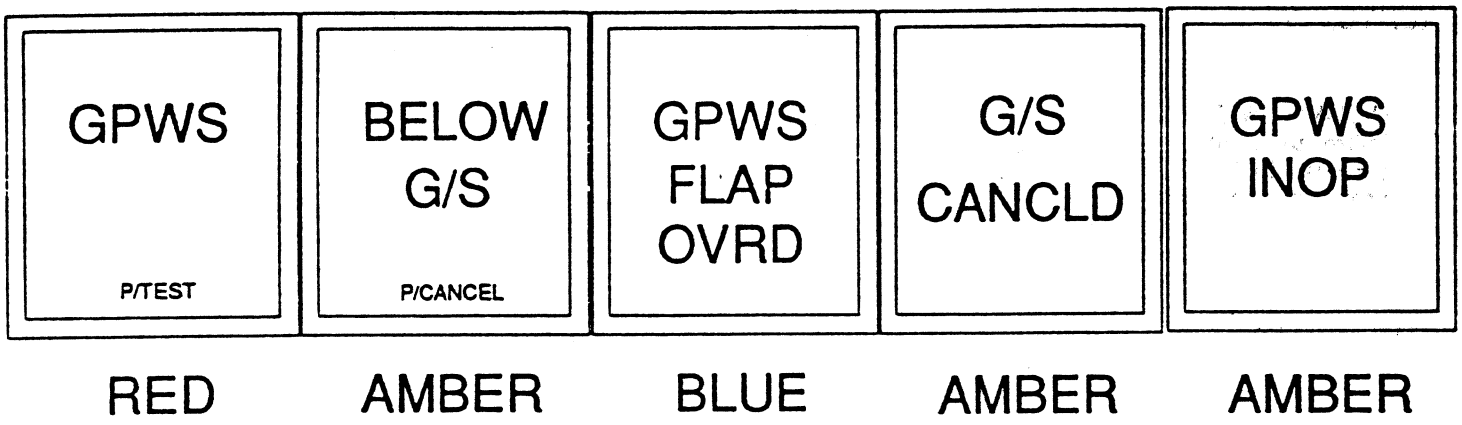
During normal flight operations, the MK-VI GPWS remains essentially silent. Alerts and warnings are given ONLY when the aircraft is within a computed dangerous position with respect to terrain. Pilot reactions to alerts and warnings differ according to weather conditions, visibility, type of warning, and phase of flight. Pilots should be thoroughly familiar with their company or operational requirements, and train to react properly just as one trains to react to an aircraft stall, engine failure, or other emergency situation.

MK-VI GPWS BLOCK DIAGRAM



The block diagram above shows the inputs to the MK-VI GPWC on the left, and the outputs from the GPWC on the right. Those items shown with dashed lines are optional inputs and outputs. Be sure to determine which, if any, of these options your system contains.

2 GPWS COCKPIT LAMPS/SWITCHES



Cockpit lamps/switches are shown above. The layout from aircraft to aircraft may differ. Some aircraft will have modules grouped together or two separate groups of modules. Often the GPWS INOP lamp will be by itself.

All lamp/switch modules should be in the primary field of view of each pilot.

3 MK-VI GPWS SELF-TEST PROCEDURE

Prior to flight, the MK-VI GPWS should be tested for proper operation. Normally this is done by the flight crew during the BEFORE TAKE-OFF check. All aircraft power and systems should be up and running, and the GPWS INOP lamp should be off.

The procedure below looks a bit long, but once you have done it a few times, you will be familiar with it and 4 or 5 seconds is all it takes.

1. Depress and HOLD the GPWS Self-Test Switch. (Red GPWS warning lamp.)	
2. Observe that:	GPWS INOP lamp comes ON immediately G/S CANCLD lamp comes ON immediately (if installed) FLAP OVRD lamp comes ON immediately (if installed)
3. Approximately 1/2 second later:	BELOW G/S lamp comes ON Aural message "GLIDESLOPE" is heard ONCE at reduced test volume.
4. Approximately 1 to 2 seconds later:	Red GPWS warning lamp comes ON Aural message "PULL-UP" is heard 2 to 6 times at reduced test volume.
5. After the "PULL-UP" message is heard at least twice:	RELEASE the GPWS Self-Test Switch
6. All lights will extinguish and all aural messages will terminate.	

This is a successful Self-Test. If you see or hear any other sequence, message, or OMISSION of lights or messages, there is a fault in the GPWS or one of its inputs. IMPORTANT: WAIT 30 SECONDS FOR THE GPWC TO RE-INITIALIZE BEFORE ATTEMPTING ANOTHER SELF-TEST PROCEDURE.

If you are ready to perform a Self-Test, and you observe that the GPWS INOP lamp is ON, the GPWS has a short menu of fault messages to tell you which input may be the problem.

With the GPWS INOP lamp ON:

- Depress and HOLD the GPWS Self-Test Switch

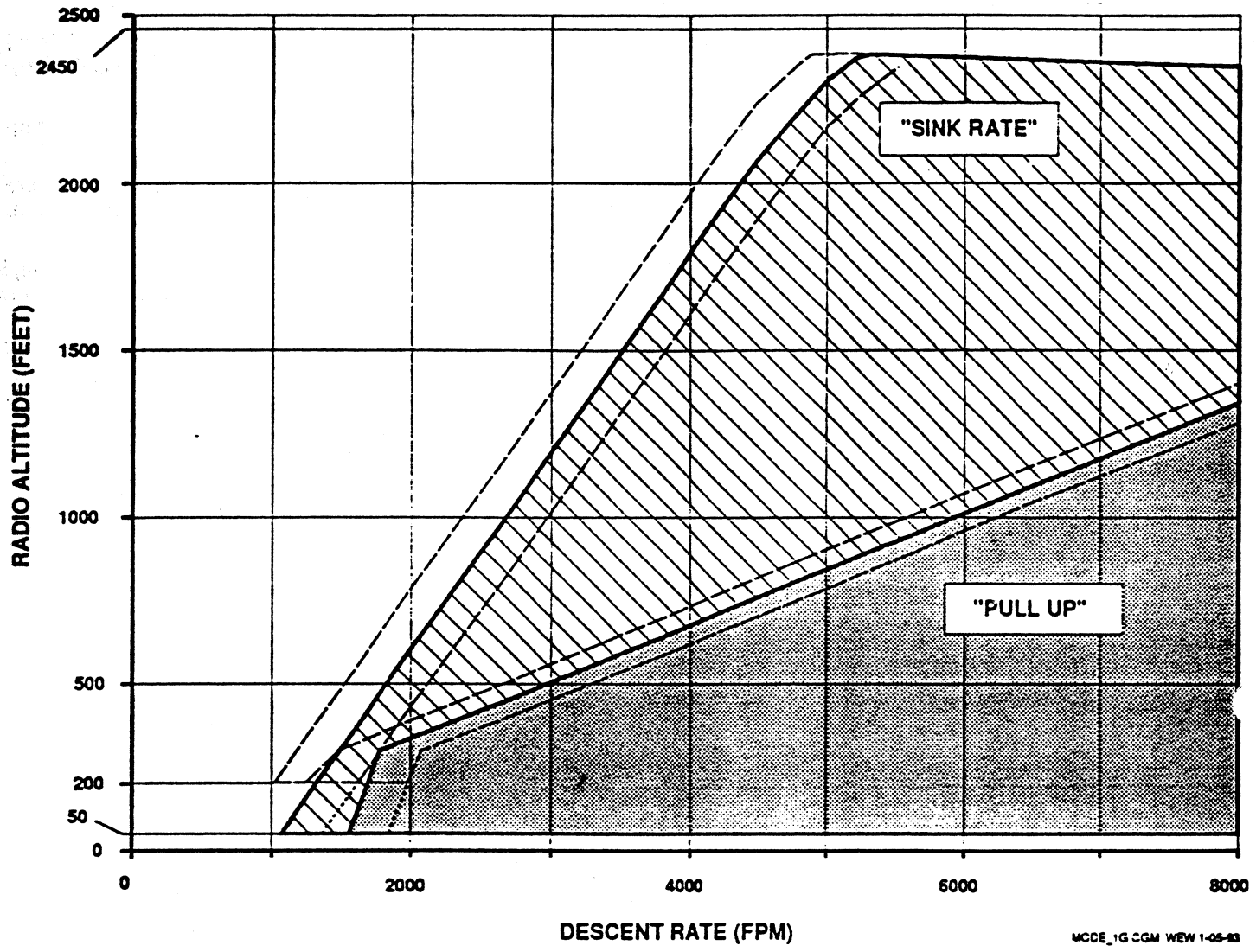
There are three possible fault messages:

- "RADIO ALTITUDE FAULT"
- "GLIDESLOPE FAULT"
- "BARO RATE FAULT"

The fault message will repeat ONCE, then RELEASE the GPWS Self-Test Switch.

These messages indicate that the problem is a failure in a system providing input to the GPWC, or a broken wire between the system and the GPWC.

MODE 1 - EXCESSIVE DESCENT RATE



4 MODE ONE: EXCESSIVE DESCENT RATE

Mode One provides alerts and warnings for excessive rates of descent with respect to AGL altitude. Whenever the aircraft is below 2,450 feet AGL, the MK-VI GPWS monitors vertical rate of descent (fpm) and radio altitude. As you can see from the chart at the left, there are two envelopes of protection.

If the outer envelope is penetrated, the alert "SINK RATE" will be heard every three seconds and the red GPWS warning lamp will illuminate. When the aircraft exits the alert envelope, the voice message will cease and the red warning lamp will extinguish.

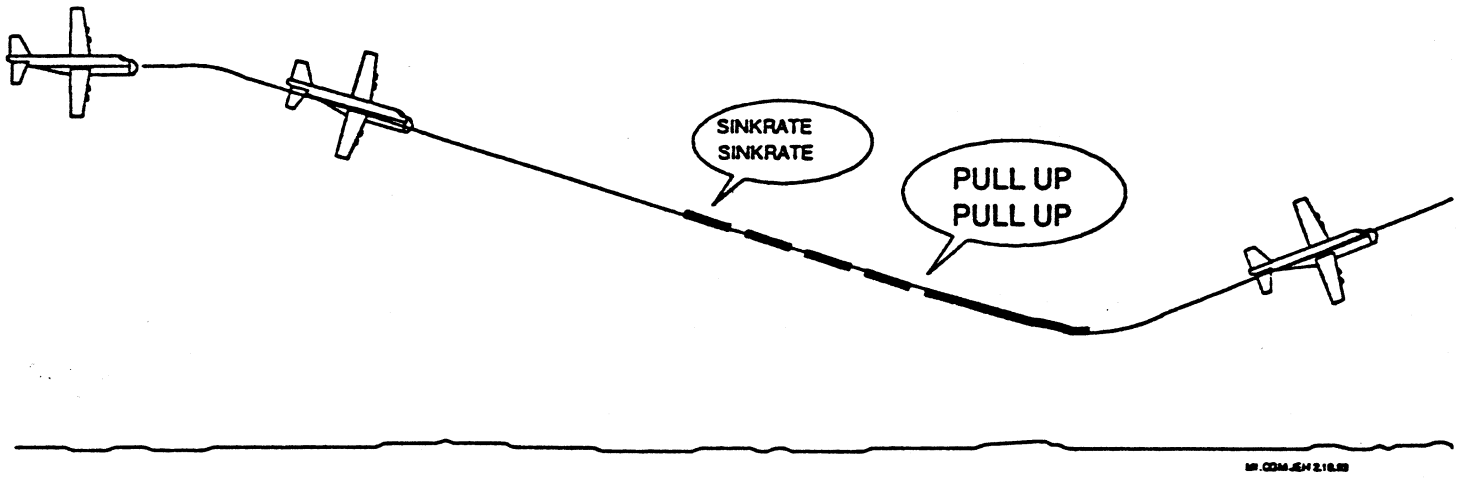
You will note that as the aircraft flies at lower and lower AGL altitudes, the rate of descent necessary to cause an alert or warning decreases. For example, at 2,000 feet AGL, at rate of descent of approximately 4,400 fpm is necessary to produce a "SINK RATE" alert. At 500 feet AGL, a 1,800 fpm rate of descent will produce the alert.

If the inner envelope is penetrated, an urgent "PULL-UP" voice message will be heard continuously and the red GPWS warning lamp will be illuminated. As before, the warning will cease and the light will extinguish when the envelope is exited. (The GPWS may revert to the "SINK RATE" alert condition if that envelope is not also exited during recovery.)

The dotted lines on the graph indicate how the Mode One alert and warning envelopes shift to accommodate certain conditions. If the aircraft is on a Glideslope but above the beam center line, the envelopes shift to the right 150 fpm for each dot of deviation above, (to a maximum of 300 fpm shift). This allows a slightly greater rate of descent for maneuvering down to beam center line without nuisance alerts.

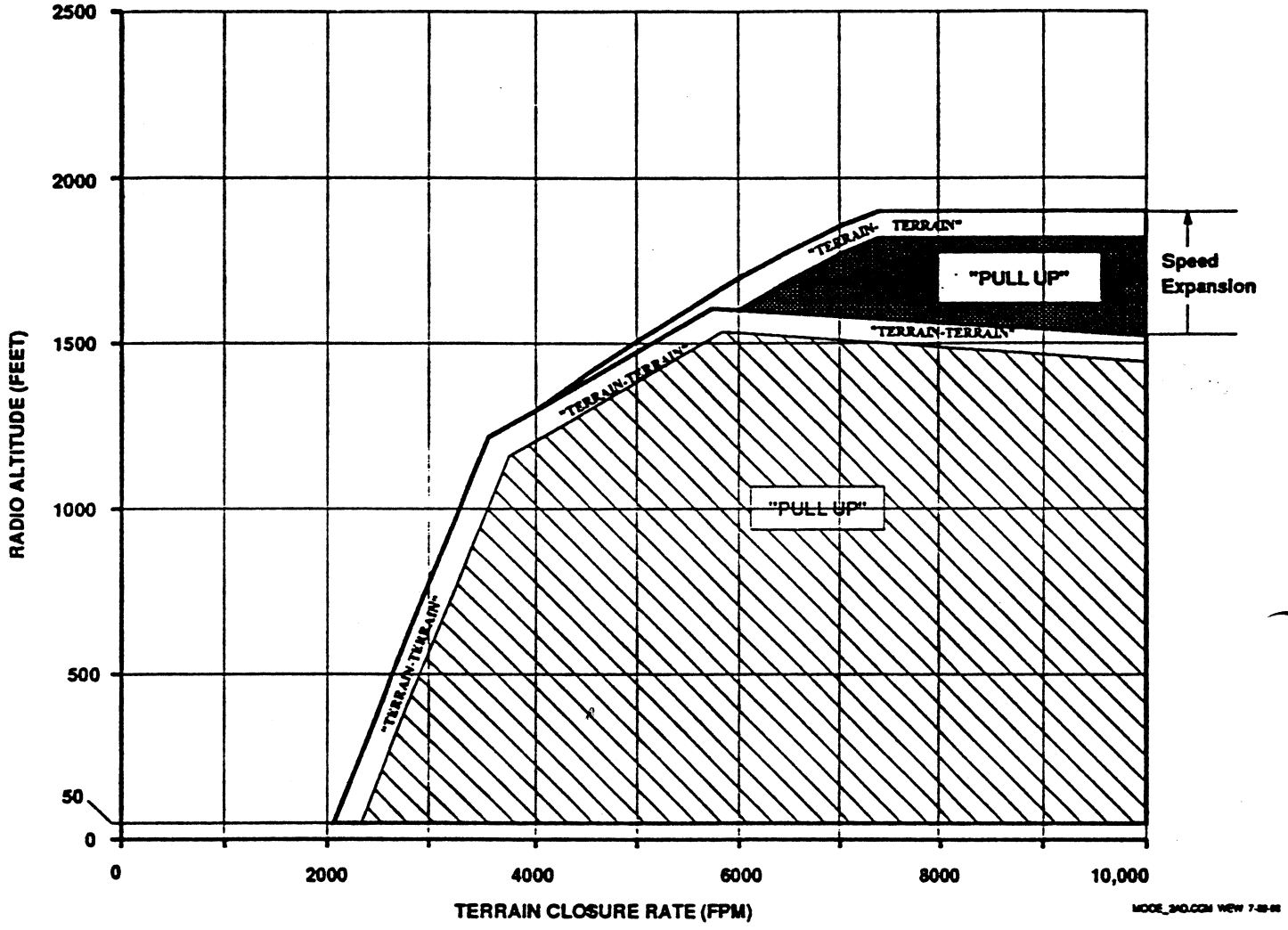
If the aircraft is below Glideslope center line, the envelopes shift to the left 150 fpm for each dot of deviation below the beam, (to a maximum of 300 fpm). This advances alert activation slightly while the aircraft is below Glideslope center line.

Both envelopes are also automatically shifted 300 fpm to the right whenever the FLAP OVERRIDE is selected.



MODE 2A - EXCESSIVE CLOSURE RATE to TERRAIN

(ARMED WHEN FLAPS NOT IN LANDING CONFIGURATION AND AIRCRAFT NOT ON GLIDESLOPE CENTERLINE)



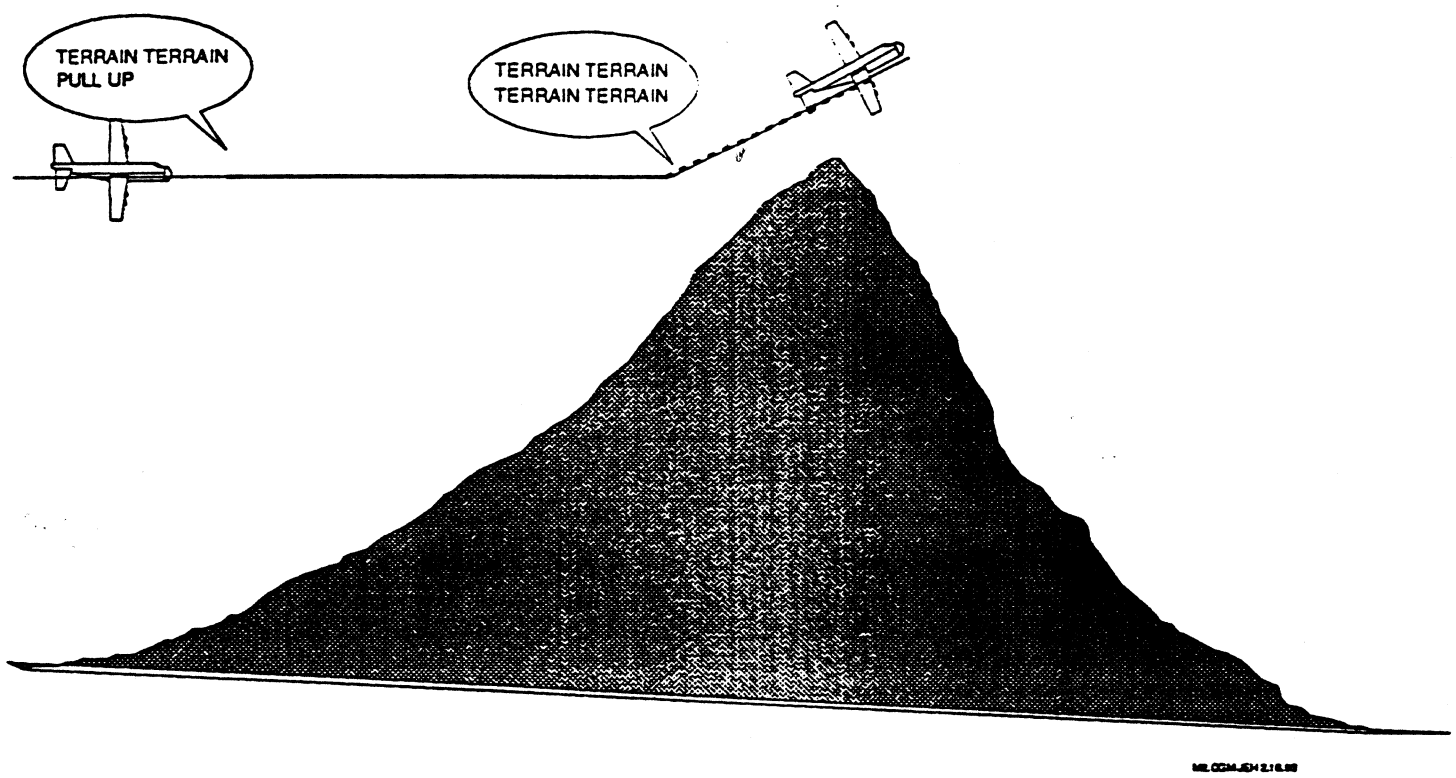
5 MODE TWO: EXCESSIVE CLOSURE RATE TO TERRAIN

Mode Two provides protection for situations where the terrain is rising excessively fast underneath the aircraft with respect to aircraft flight path. Since there are no forward-looking sensors in the MK-VI GPWS, the GPWC uses radio altitude, airspeed, and vertical speed information to compute excessive CLOSURE RATES with terrain. If radio altitude begins to decrease rapidly and there is no excessive rate of descent present, terrain must be coming up under the aircraft flight path. The GPWC therefore sees a closure rate to terrain. The faster the aircraft is travelling, the faster the closure rate will be for a given terrain profile.

The chart at the left shows Mode 2A, which is active in routine flight operations, (Flaps NOT in landing configuration, FLAP OVERRIDE NOT selected). When the closure rate is high enough, the alert message "TERRAIN-TERRAIN" will be heard once and the red GPWS warning lamp will illuminate. This will be followed immediately by the continuous warning message "PULL-UP" until the closure rate is no longer present and the envelope is exited.

Upon exiting the warning envelope, aural warning messages will cease, but the red GPWS warning lamp will remain on until the aircraft has climbed approximately 300 feet barometric altitude from where the last "PULL-UP" message was heard. This is to help ensure that the recovery maneuver is continued to a safe altitude after closure rate with terrain is reduced. The red GPWS warning lamp will then extinguish.

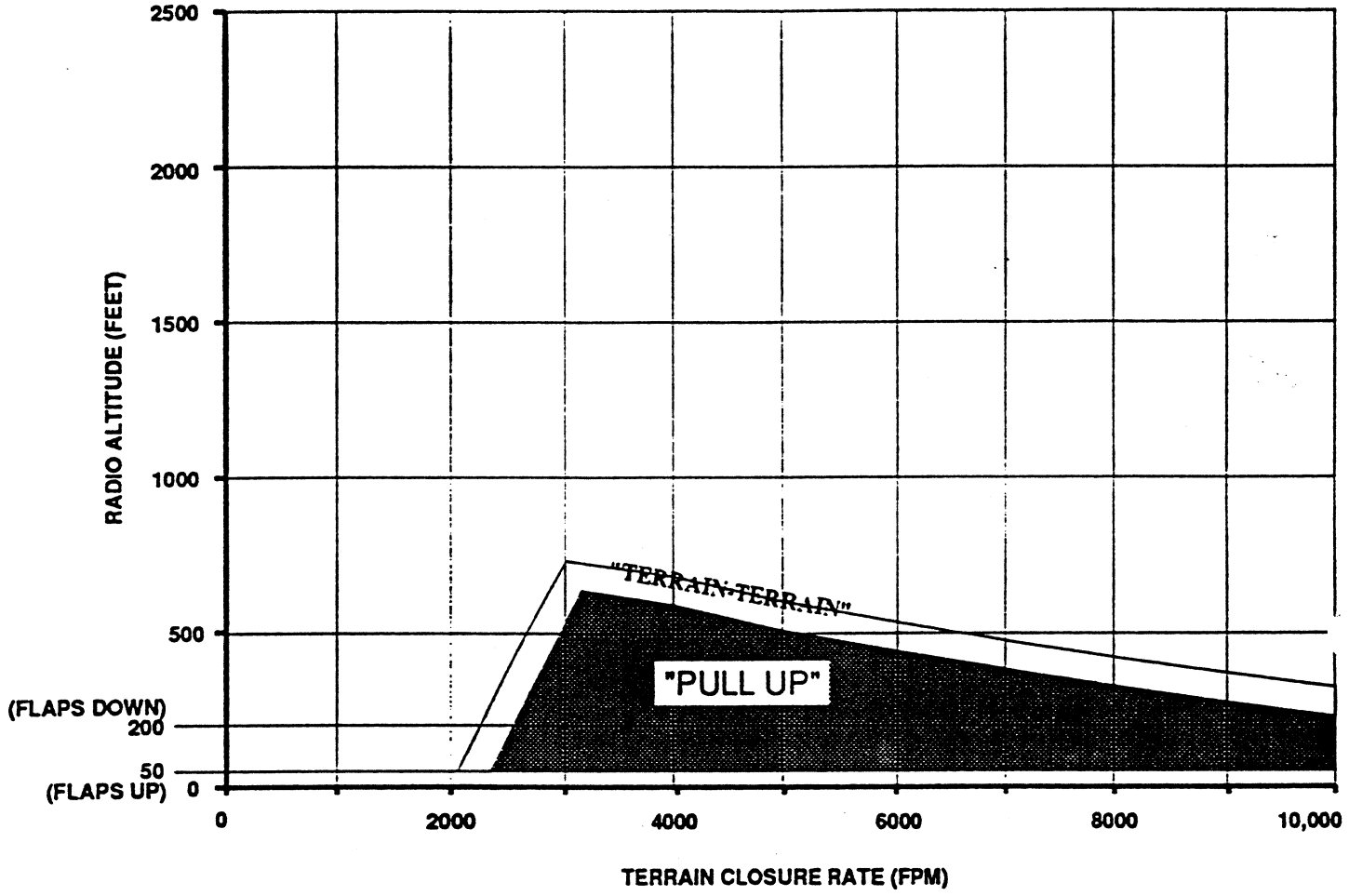
The Speed Expansion area at the top right of the warning envelope is to provide additional warning time for aircraft flying at approximately 220 knots and faster. This is automatically done in the GPWC and does not require any flight crew action.



MODE 2 TEST PROFILE

MODE 2B - EXCESSIVE TERRAIN CLOSURE RATE

(ARMED WHEN FLAPS ARE DOWN
-OR- GPWS FLAP OVERRIDE ON
-OR- ON GLIDESLOPE CENTERLINE)



MODE TWO: EXCESSIVE CLOSURE RATE TO TERRAIN (cont'd)

Mode 2B warning envelopes are shown in the chart to the left. Mode 2B is active during the approach phase of flight:

- Flaps ARE in landing configuration, or
- FLAP OVERRIDE is selected, or
- Aircraft is on a Glideslope AND NOT more than 1.3 dots below beam center line, and
- G/S CANCEL function has NOT been selected.

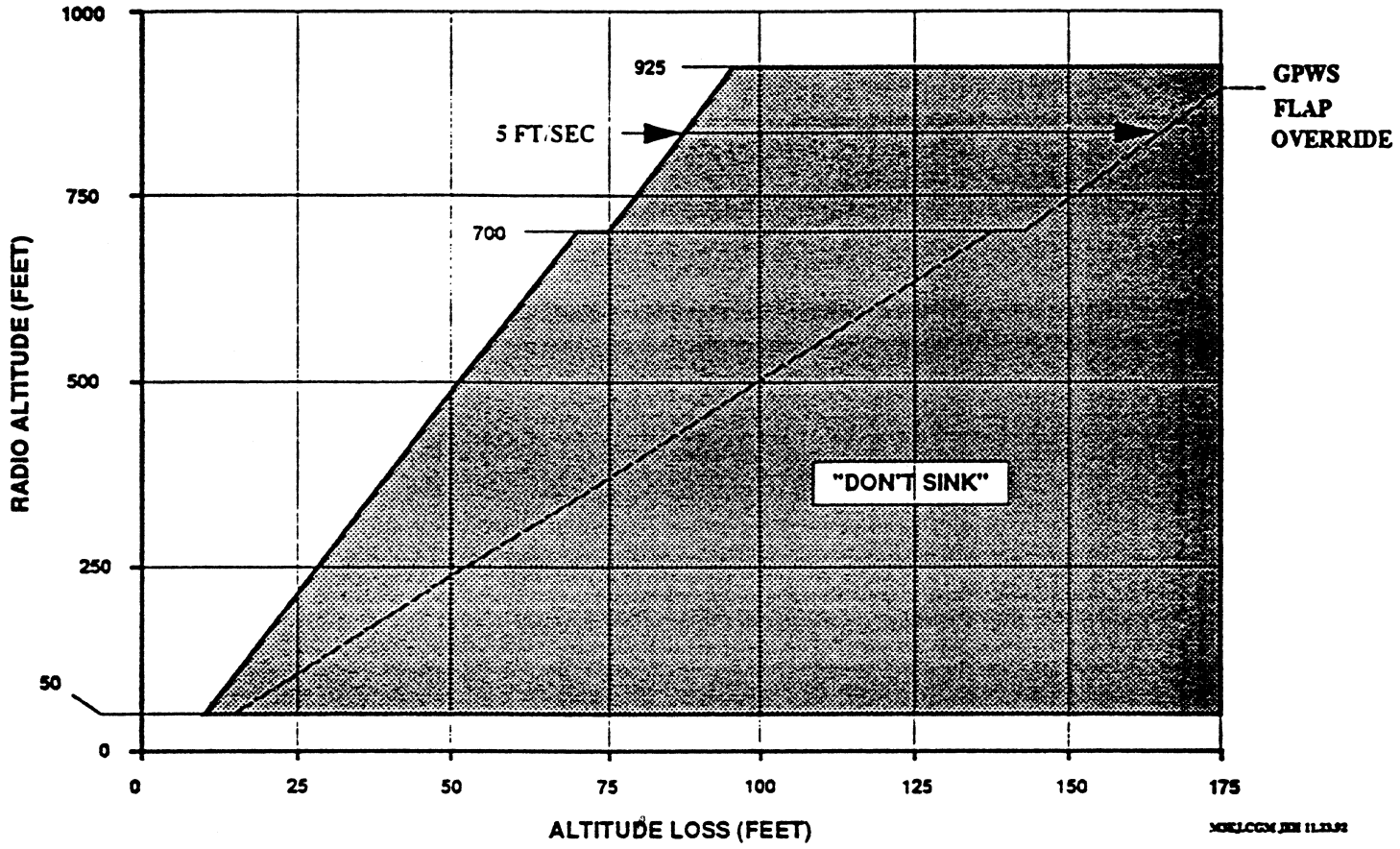
You will note that the warning envelope is much smaller. This is to allow flight paths closer to terrain as is normal during approach situations, without nuisance warnings to the crew.

Should the Mode 2B envelope be penetrated with landing gear down AND flaps in landing configuration (or FLAP OVERRIDE selected), a repetitive "TERRAIN-TERRAIN" message will be heard and the red GPWS warning lamp will illuminate. No "PULL-UP" warning will occur.

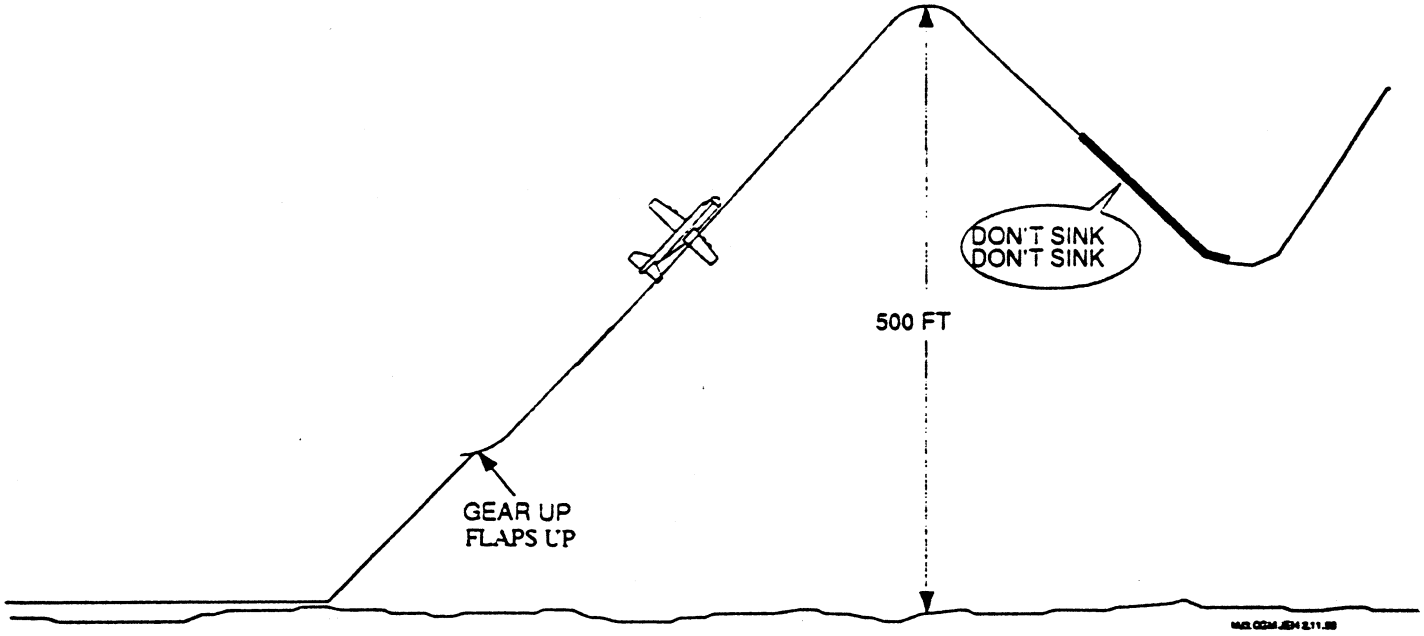
Otherwise, Mode 2B alert and warning messages will be the same as Mode 2A:
a single "TERRAIN-TERRAIN" message followed by repetitive "PULL-UP" warnings.

In either case, when the Mode 2B envelope is exited, voice messages will cease and the red GPWS warning lamp will extinguish immediately.

MODE 3 - DESCENT AFTER TAKEOFF



MODE 3 PROFILE



6 MODE THREE: DESCENT AFTER TAKE-OFF

Mode 3 provides alerts for protection against excessive altitude loss after take-off, or after a missed approach (go-around) from altitudes below 245 feet AGL. The chart at the left shows the alert envelope. As the aircraft leaves the ground or begins a go-around, the GPWC sees the airspeed increasing, radio and barometric altitude increasing, landing gear retraction, etc. This indicates a "take-off" situation. Once above 50 feet radio altitude, the GPWC monitors radio AND barometric altitude gains.

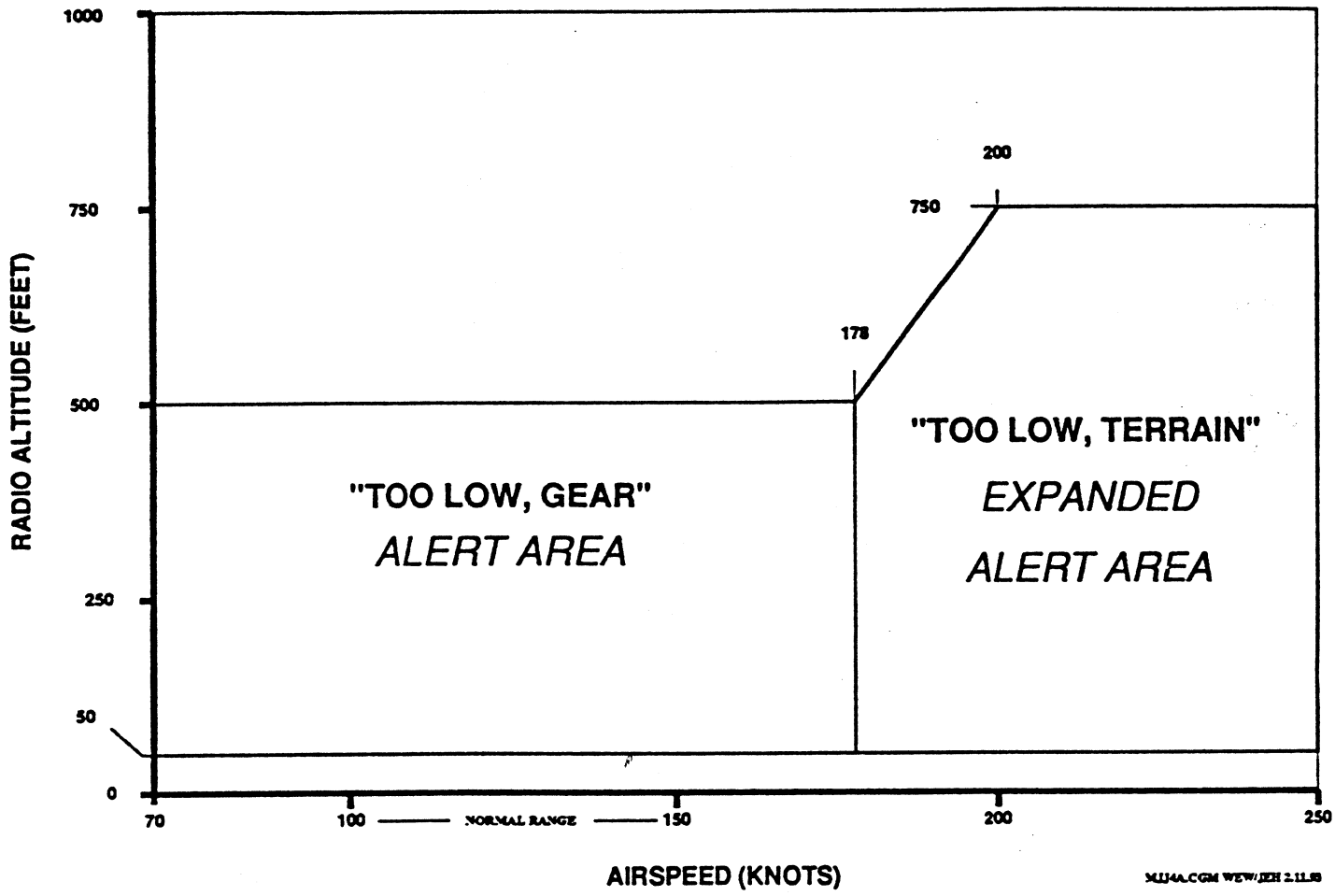
If for some reason the aircraft begins to descend toward the surface, a comparison of radio altitude gained to that point is made with barometric altitude being lost in the descent. When barometric altitude loss is approximately 10 percent of radio altitude gained, the alert message "DON'T SINK" will be heard every three seconds, and the red GPWS warning lamp will illuminate. For example, if the radio altitude gained after take-off is 500 feet AGL, a barometric altitude loss of 50-55 feet will produce the alert.

Once a positive rate of climb is re-established, the alert message will cease and the red GPWS warning lamp will extinguish. Note that above 700 feet AGL, the envelope is shifted to the right 5 ft/second to allow greater altitude loss before alert activation. This is because you will have more time and space to recover than at lower altitudes, and reduces the possibility of nuisance warnings.

For training and pattern work, the FLAP OVERRIDE may be selected above 50 feet AGL. This will shift the entire alert envelope to the right and allow approximately 20 percent loss of barometric altitude before alerts are given.

Once the aircraft has climbed above 925 feet AGL for more than 15-20 seconds, Mode 3 becomes inactive until the GPWC again detects a "take-off" or "go-around" situation.

MODE 4A - PROXIMITY TO TERRAIN, GEAR UP



7 MODE FOUR: INSUFFICIENT TERRAIN CLEARANCE

Mode Four generates three types of alerts which are based on Radio Altitude, Airspeed, and aircraft configuration. These are referred to as Modes 4A, 4B, and 4C.

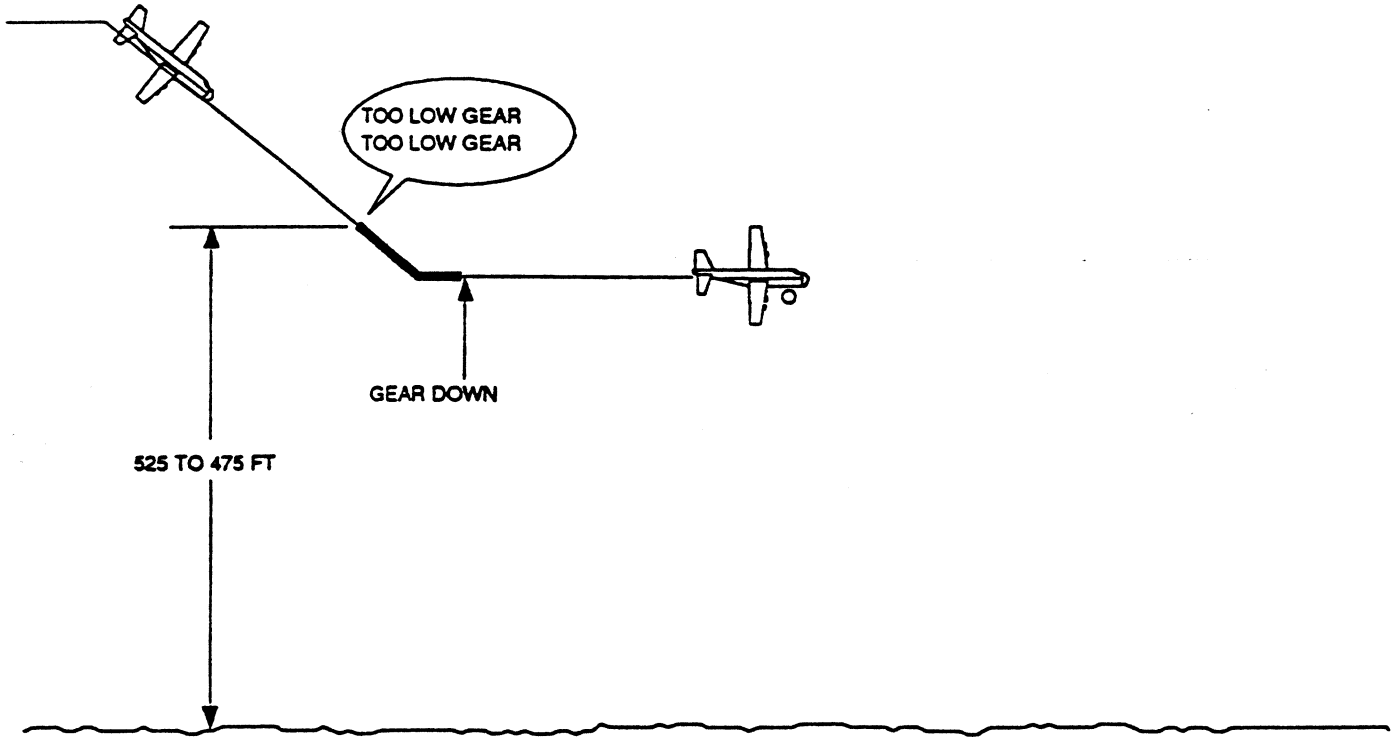
Mode 4A is shown in the chart at the left. This mode is designed to give protection for aircraft flying in the cruise configuration (basically clean).

There are numerous cases of CFIT accidents where aircraft have descended into relatively flat terrain or water where there was no excessive rate of descent present (which would give a Mode 1 warning), and where the terrain did not rise steeply enough relative to the flight path to create an excessive terrain closure rate (which would give a Mode 2 warning). Also, executing a perfect landing with the landing gear UP is an all too common form of CFIT.

With landing gear UP and flaps NOT in landing configuration, the GPWC monitors the aircraft radio altitude and airspeed. At high airspeeds, (above 178 KIAS), the GPWS will provide the aural alert "TOO LOW TERRAIN" every three seconds between 500 and 750 feet AGL, and the red GPWS warning lamp will illuminate. As you can see from the chart, an airspeed above 200 KIAS will produce this alert starting at 750 feet AGL. At slower airspeeds down to 178 KIAS, the altitude at which the alert begins is progressively lower.

The idea is that the pilot should be aware of his proximity to terrain at these high airspeeds. By climbing above the altitude at which the alert began, safe terrain clearance is re-established. The "TOO LOW TERRAIN" message and GPWS warning lamp will then shut off.

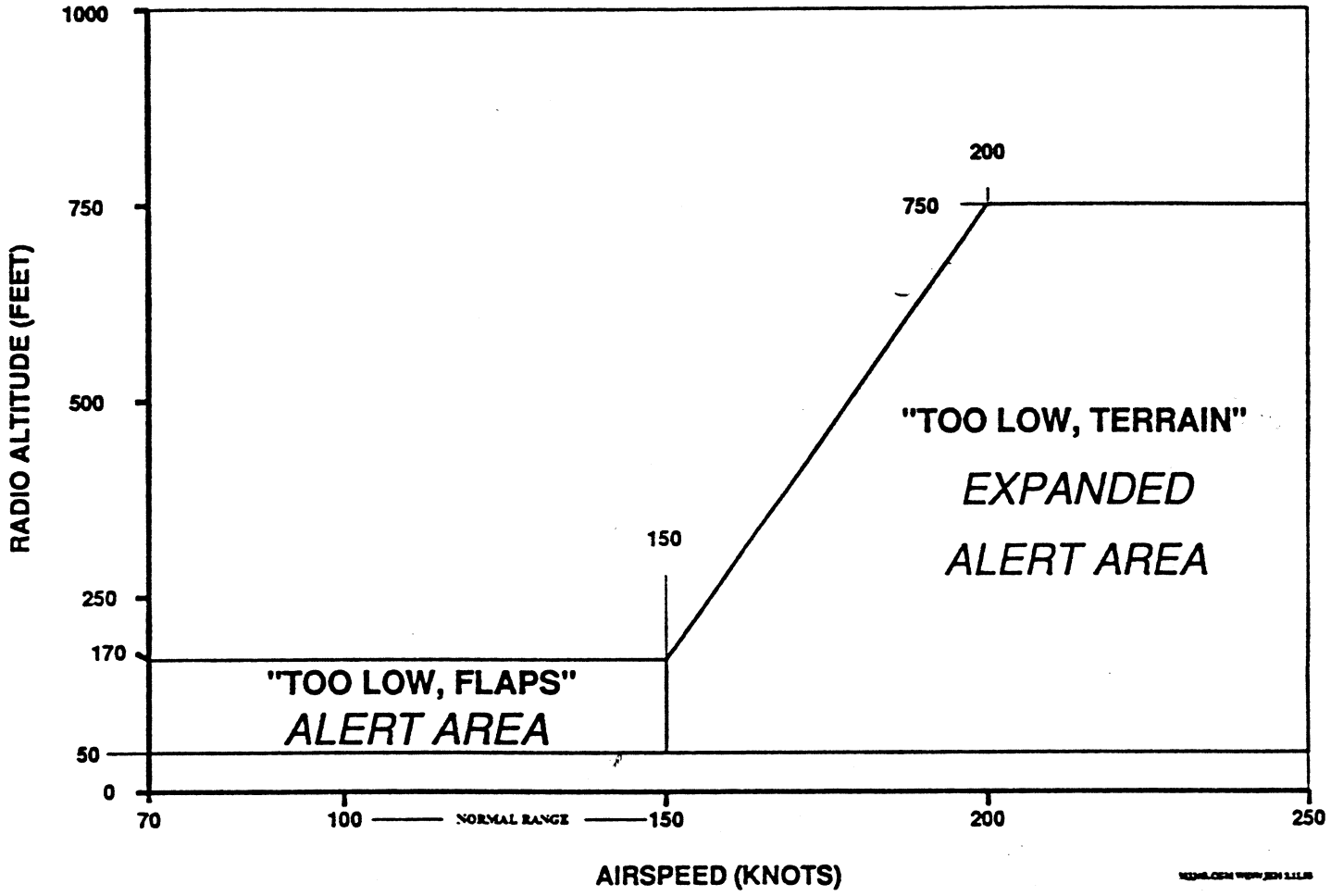
At airspeeds below 178 KIAS, the GPWS is now concerned with aircraft configuration. At these lower airspeeds, the aircraft is most likely on approach to land. If at 500 feet AGL (radio altitude), the landing gear is NOT DOWN, the alert message "TOO LOW GEAR" will repeat every three seconds and the red GPWS warning lamp will illuminate. Once the landing gear is DOWN the message and lamp will shut off. Of course, if landing gear is DOWN before the aircraft descends through 500 feet AGL, the GPWS will remain silent.

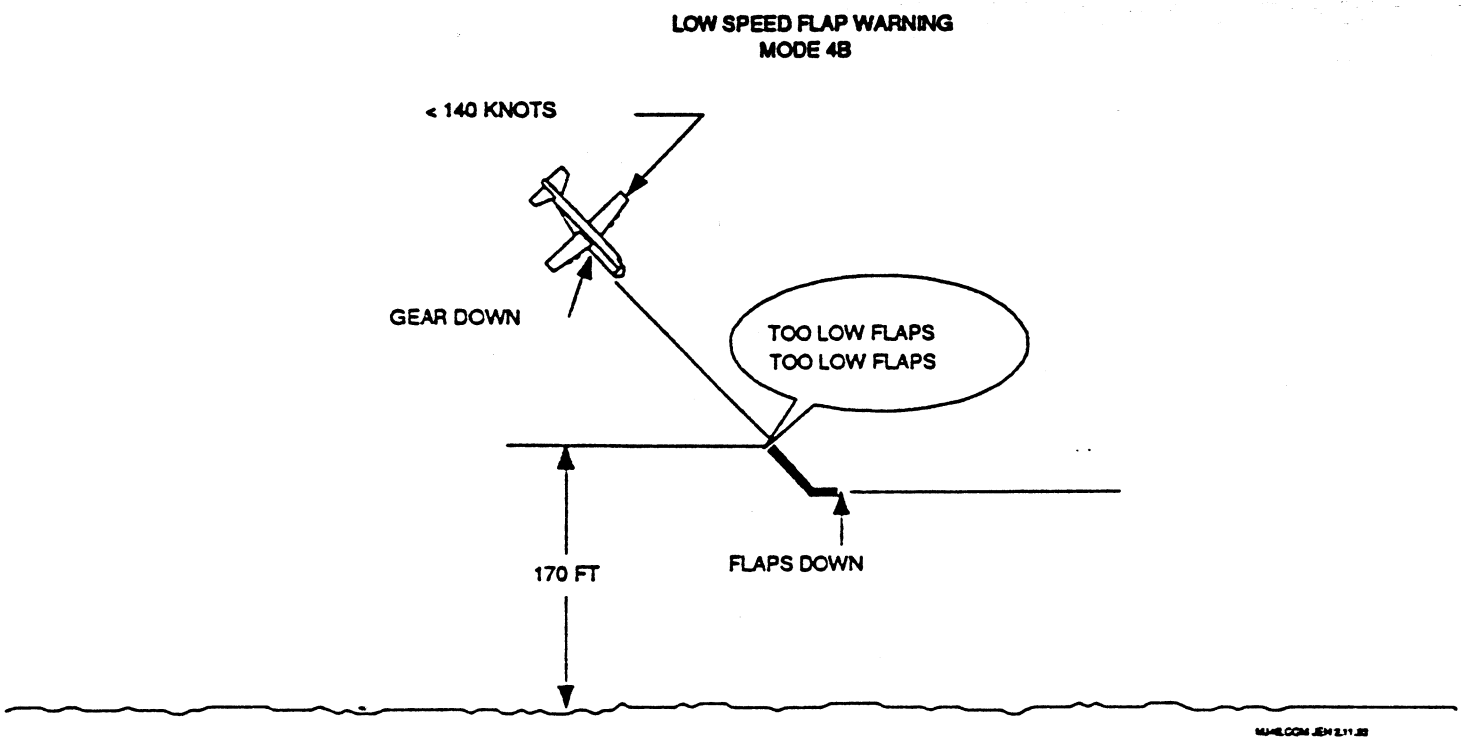


LOW SPEED GEAR WARNING PROFILE (MODE 4A)

MODE 4B - PROXIMITY TO TERRAIN

FLAPS NOT IN LANDING RANGE





8 MODE FOUR: INSUFFICIENT TERRAIN CLEARANCE (cont'd)

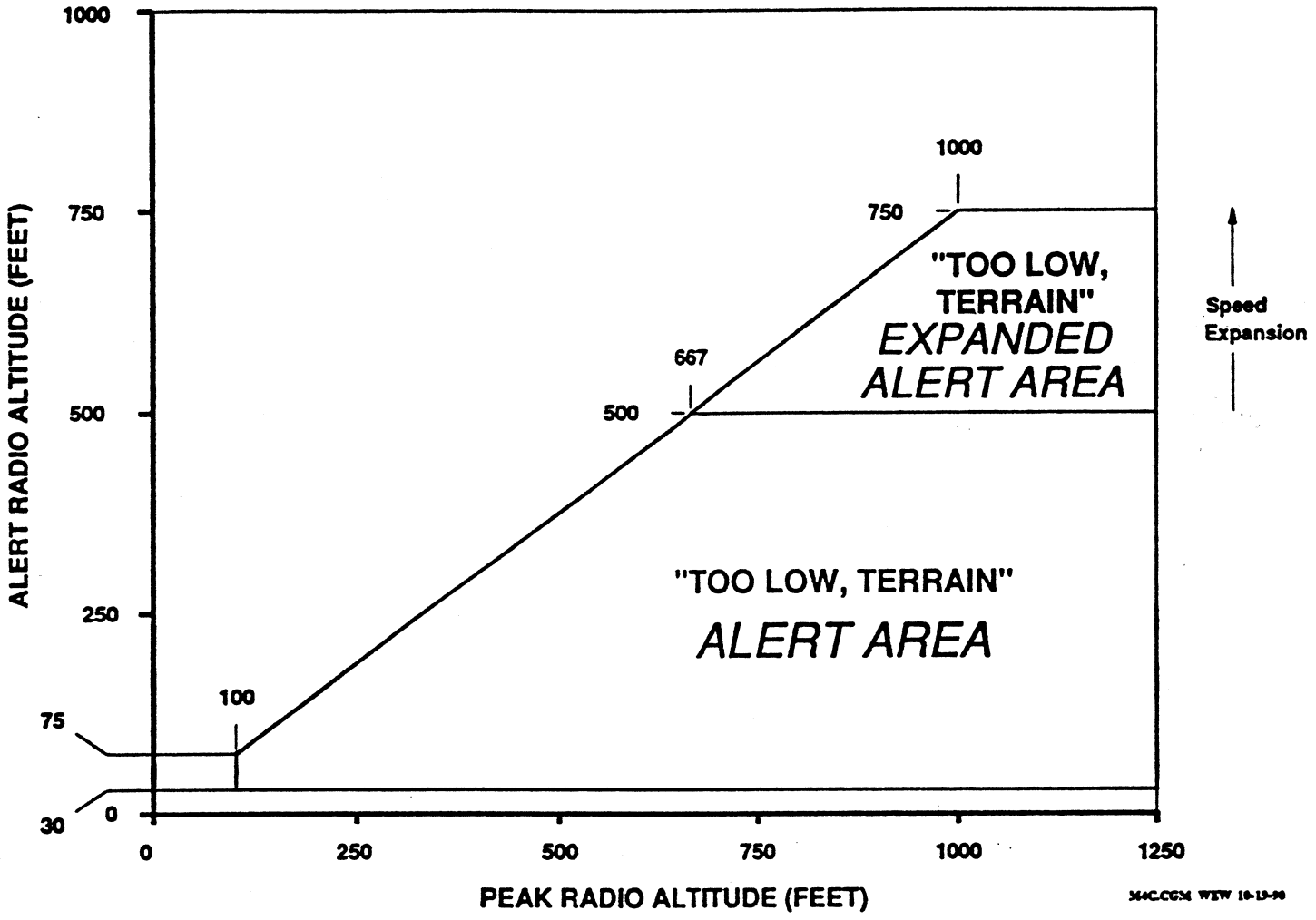
Mode 4B provides similar alerts to Mode 4A, except that Mode 4B is active when landing gear is DOWN. The chart at the left shows Mode 4B. The alert for "TOO LOW TERRAIN" is identical to Mode 4A, except that its minimum speed is 148 KIAS.

Since the landing gear is already DOWN, the GPWS now provides an alert if flaps are not FULL DOWN in the landing configuration as the aircraft descends through 170 feet AGL, at speeds less than 148 KIAS. The alert message is "TOO LOW FLAPS" every three seconds, and the red GPWS warning lamp illuminates. Once the flaps have been extended to FULL DOWN, the alert message and GPWS warning lamp will shut off. Again, if flaps are FULL DOWN by 170 feet AGL, the GPWS will remain silent. (NOTE: An alternate Flap alert altitude of 150 feet is available as an option. This is set into the GPWC at time of installation.)

Weather conditions, training, or a flap system failure during flight, may necessitate landings to be made with less than FULL flaps extended. For these situations, an optional FLAP OVERRIDE Switch (FLAP OVRD), is provided. This switch may be engaged anytime the aircraft is above 50 feet Radio Altitude, and will silence the "TOO LOW FLAPS" alert regardless of actual flap setting and altitude. The red GPWS warning lamp will NOT illuminate. The FLAP OVRD Switch will also silence a "TOO LOW FLAPS" alert in progress.

If the FLAP OVRD switch is engaged, it will automatically reset to OFF when the aircraft descends below 50 feet AGL upon landing.

MODE 4C - PROXIMITY TO TERRAIN - TAKEOFF



MODE FOUR: INSUFFICIENT TERRAIN CLEARANCE (cont'd)

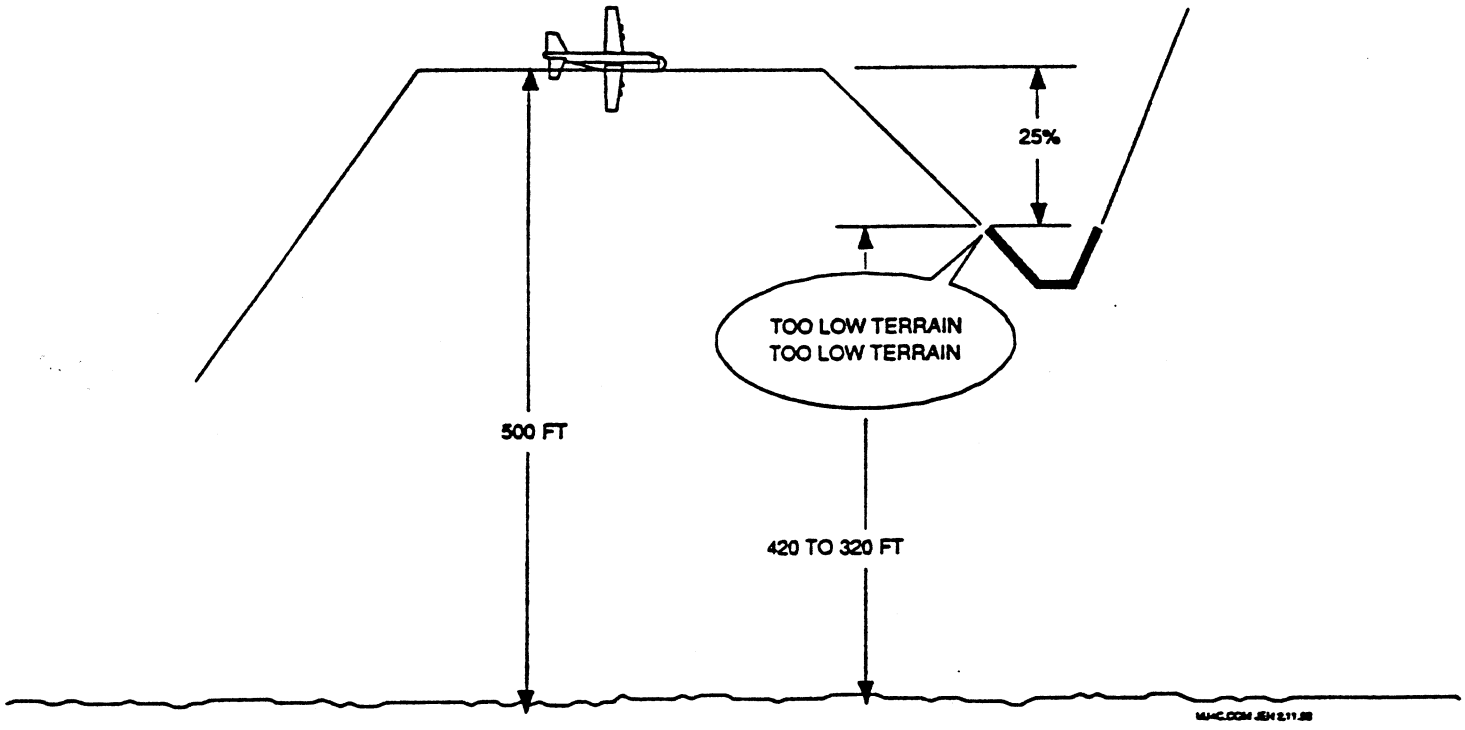
Mode 4C provides a "TOO LOW TERRAIN" message every three seconds and illuminates the red GPWS warning lamp. This alert is based on a minimum terrain clearance floor that is created by the GPWC during take-off, or on a go-around from altitudes below 200 feet AGL. On take-off, the Mode 4C floor is generated beginning at 100 feet Radio Altitude. On a go-around the floor is generated beginning at 200 feet Radio Altitude.

The Mode 4C minimum terrain clearance floor increases with Radar Altitude as the aircraft climbs, to a value of 75 percent (or 3/4), of the peak radio altitude achieved. Thus there is an alert message of "TOO LOW TERRAIN" protecting the aircraft 25 percent below its highest AGL altitude during a climb, to a maximum of 750 feet AGL.

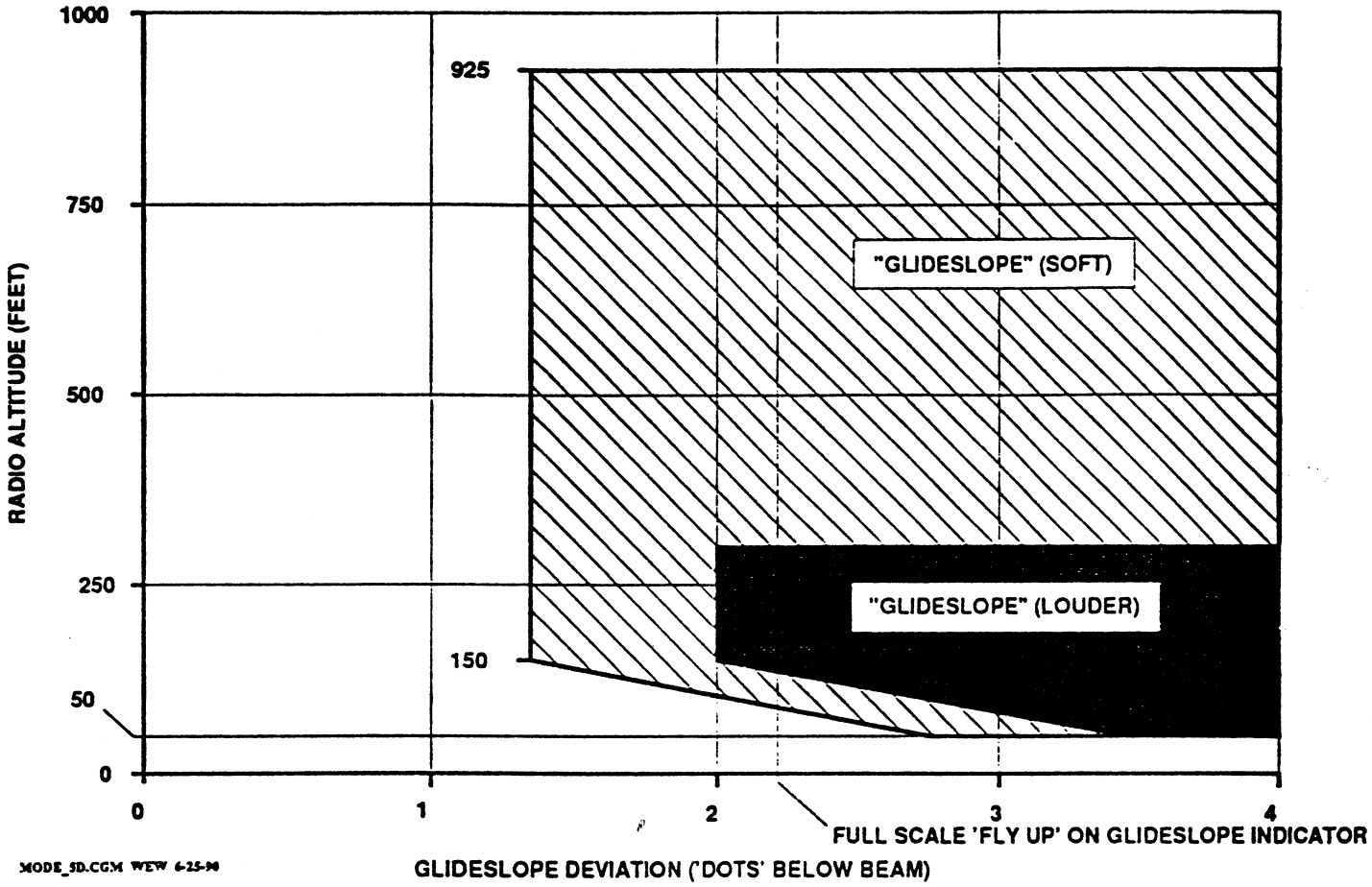
Mode 4C is designed to give pilots an alert for continued descent after take-off (you would likely here Mode 3, "DON'T SINK" first), or for a situation where the terrain is rising at a steeper gradient than the aircraft is climbing shortly after take-off. Remember, the Mode 3 warning requires a loss of barometric altitude. If the aircraft is not out-climbing the terrain, barometric altitude may be increasing while radar altitude is DECREASING. The protection of Mode 4C provides an alert when the minimum terrain clearance floor is violated. Re-establishing an altitude above the minimum floor will cause the alert message and red GPWS warning light to shut off.

Once above 750 feet AGL, Mode 4C becomes inactive until another take-off or go-around situation is detected by the GPWC.

TERRAIN CLEARANCE - TAKEOFF
MODE 4C



MODE 5 - DESCENT BELOW GLIDESLOPE



10 MODE FIVE: DESCENT BELOW GLIDESLOPE

Mode 5 provides alerts for excessive deviation below a Glideslope beam while on an ILS approach. The chart above shows the two warning envelopes. For these alerts to be active, the following conditions must be met:

- ILS / Glideslope frequency being received (usually Captain's NAV)
- Landing gear DOWN
- Aircraft below 925 feet Radio Altitude
- G/S CANCLD function NOT selected

Assuming the above conditions are met, the voice message "GLIDESLOPE" will be heard and the amber BELOW G/S lamp will illuminate when the deviation BELOW the glideslope center line beam exceeds approximately 1.3 "dots" FLY UP. The initial voice message is referred to as a "soft" alert as it will be -6db quieter than normal GPWS warnings. Also, repetition of the voice message changes with Radio Altitude. As the Radio Altitude decreases, the "GLIDESLOPE" alert will be heard more and more frequently.

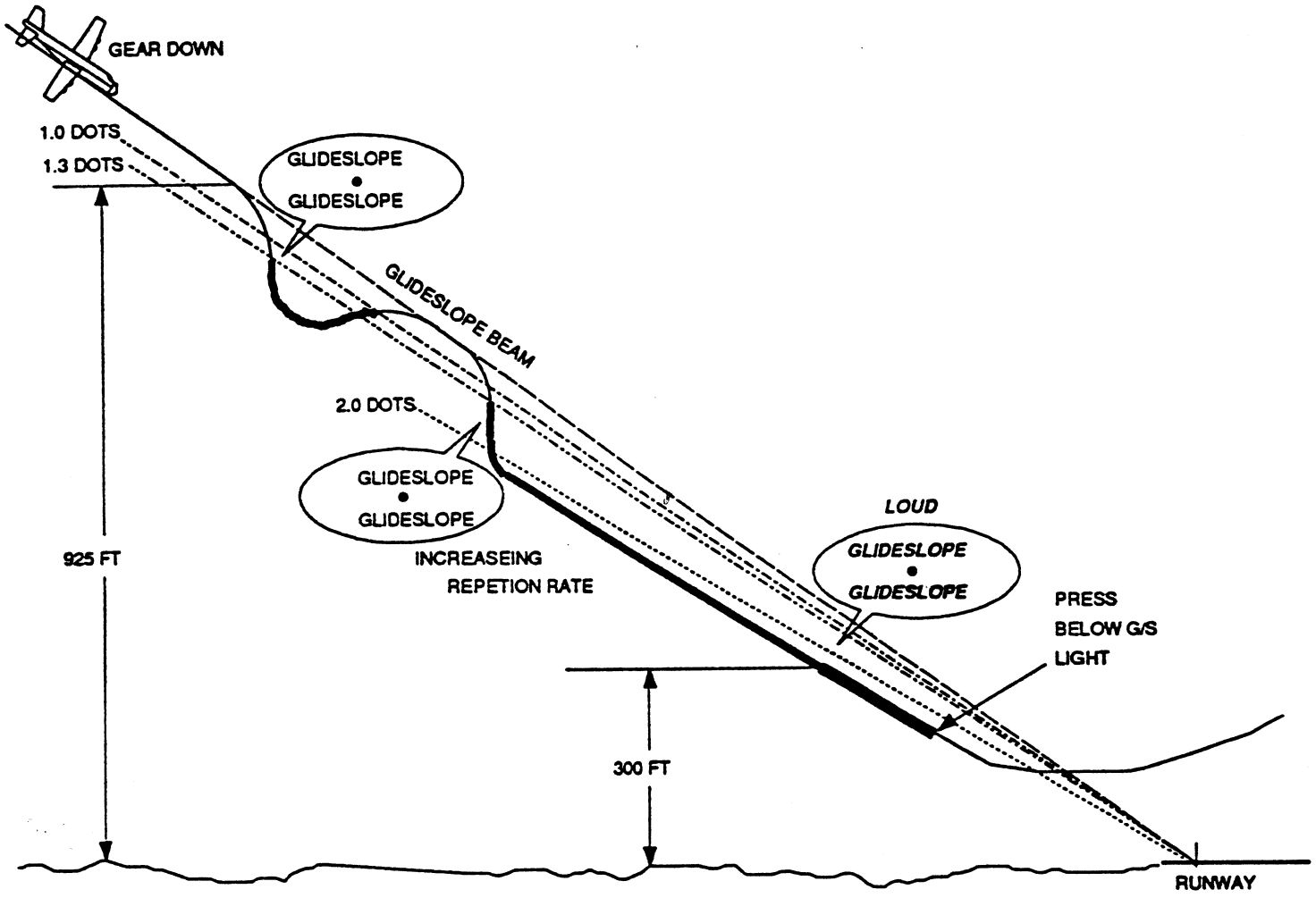
If deviation BELOW the glideslope increases to 2.0 "dots" FLY UP or more, and the aircraft is below 300 feet Radio Altitude, the "GLIDESLOPE" alert message will increase in volume to equal the normal warning message levels. This is called the "hard" warning.

When the aircraft returns to less than 1.0 "dots" deviation BELOW the glideslope, the aural warning and the amber BELOW G/S lamp will shut off.

If the aircraft is in visual conditions, or on a "Localizer Only" approach and intentionally wishes to drop below the Glideslope center line beam, the "GLIDESLOPE" aural warning and amber BELOW G/S lamp my be cancelled by depressing the BELOW G/S lamp switch. This will cancel all Mode 5 alert functions for the remainder of the approach.

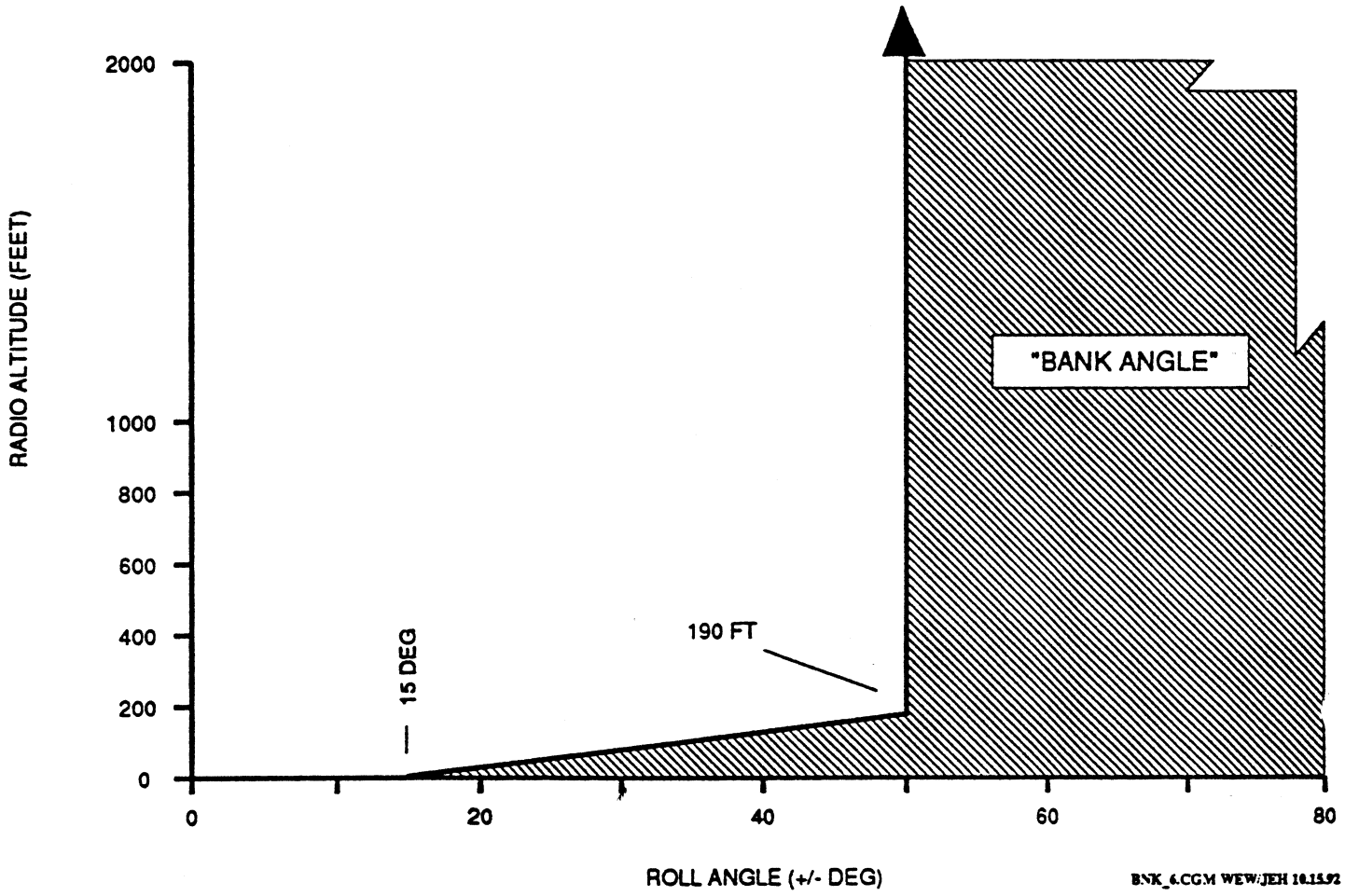
If installed, the optional amber G/S CANCLD annunciator would illuminate upon cancellation of Mode 5, as a reminder to the pilots that Mode 5 is not enabled.

Mode 5 cancellation may be done during an alert in progress, or prior to the alert, if the glideslope is being received. Mode 5 will reset itself automatically after cancellation when the aircraft descends below 50 feet AGL, climbs above 1900 feet AGL, or may be reset manually by briefly selecting a VOR frequency with the appropriate NAV receiver.



MODE 5 PROFILE

Bank Angle Envelope



11 MODE SIX: ALTITUDE CALLOUTS / DECISION HEIGHT / EXCESSIVE BANK ANGLE

Mode 6 messages are optional, and they are enabled or disabled at the time of GPWC installation. The flight crew cannot select or deselect these callouts from the cockpit except for the DECISION HEIGHT callout as described below.
NO COCKPIT LAMPS ARE ILLUMINATED DURING MODE 6 AURAL MESSAGES.

ALTITUDE CALLOUTS:

The MK-VI GPWS provides optional altitude callouts of "FIVE HUNDRED" and "TWO HUNDRED" to enhance pilot's situational awareness. These callouts are available separately or both may be enabled at the time of GPWC installation.

The "FIVE HUNDRED" foot call is a "smart" call. It will be annunciated once per approach as the aircraft descends through 500 feet AGL, but ONLY if an ILS is NOT selected, or the aircraft is MORE than 2.0 "dots" BELOW the glideslope center line beam. In other words, if you are on a precision approach glideslope, you will NOT hear the callout.

The "TWO HUNDRED" foot call is annunciated once per approach as the aircraft descends through 200 feet AGL, unless overridden by the "Minimums" callout described below. It is not a "smart" callout.

DECISION HEIGHT:

When a decision height discrete is available from the Radio Altimeter and connected to the GPWS, "MINIMUMS-MINIMUMS" is annunciated once per approach as the aircraft descends through the DH altitude set on the Radio Altimeter. If this call is NOT desired for a particular approach, setting the DH altitude to a value below 50 feet will not produce a callout.

If the optional 200 foot callout is enabled, and the DH altitude is set at 200 feet on the Radio Altimeter, the 200 foot callout will not be heard. "MINIMUMS-MINIMUMS" will be heard as the aircraft descends through 200 feet AGL.

EXCESSIVE BANK ANGLE:

The chart at the left shows the alert envelope for warnings against excessive bank angles. Note that at the surface, a bank angle of 15 degrees will produce the aural message "BANK ANGLE" once every three seconds. As AGL altitude increases, the alert is shifted to progressively steeper angles of bank up to 50 degrees at approximately 150 feet AGL. The alert then occurs at 50 degrees of bank at any higher altitude. When bank angle is decreased so as to be out of the envelope, the alert message will cease.

12 AUDIO MESSAGE PRIORITY:

Only ONE voice message is produced at a time.

The highest priority message takes precedence, and IMMEDIATELY interrupts any lower priority message. If the aircraft is in a situation that meets more than one warning or alert envelope, the higher priority message will be heard until that envelope is exited. If the aircraft is still within a different alert envelope at that time, the voice message will switch to the appropriate call.

The following table shows the voice output messages that are activated for each alert, caution, and warning mode. The messages are arranged in order of priority, from the highest priority at the top of the table, to the lowest priority at the bottom of the table.

ALERT/WARNING CONDITION	VOICE MESSAGE
GPWC INVALID	(Stop All Voice Messages)
EXTERNAL AUDIO SUPPRESSION	NO MESSAGES ALLOWED
MODE 1 URGENT PULL-UP!	PULL-UP Immediate Repeat
MODE 2 PULL-UP	PULL-UP Immediate Repeat
MODE 2 TERRAIN-TERRAIN	TERRAIN-TERRAIN (Once per Mode 2)
MODE 2 TERRAIN	TERRAIN (pause) 3 Second Repeat
MODE4 TOO LOW, TERRAIN	TOO LOW, TERRAIN (pause) 3 Second Repeat
MODE 6 DECISION HEIGHT	MINIMUMS-MINIMUMS One message per approach
MODE 6 ALTITUDE CALLOUT	FIVE HUNDRED One message per approach
MODE 4 TOO LOW GEAR	TOO LOW, GEAR (pause) 3 Second Repeat
MODE 4 TOO LOW FLAPS	TOO LOW, FLAPS (pause) 3 Second Repeat
MODE 1 SINKRATE AND MODE 5 GLIDESLOPE	GLIDESLOPE, SINKRATE (pause) 3 Second Repeat
MODE 1 SINKRATE	SINKRATE (pause) 3 Second Repeat
MODE 3 DON'T SINK	DON'T SINK (Pause) 3 Second Repeat
MODE 5 GLIDESLOPE/PAUSE TIME	GLIDESLOPE (Variable pause)
MODE 6 ALTITUDE CALLOUTS	BANK ANGLE (pause) 3 Seconds Repeat
NO ALERT/WARNING	NO MESSAGE

13 INFLIGHT ACTIVATION OF:

GPWS WARNINGS: "PULL-UP" / "TERRAIN-TERRAIN" / "TOO LOW TERRAIN"

Sundstrand recommends:

If in IMC or at NIGHT when alert and/or warning is activated:

1. LEVEL WINGS AND SIMULTANEOUSLY PITCH UP AT A ROTATION RATE OF 2 to 3 DEGREES PER SECOND TO THE BEST ANGLE OF CLIMB ATTITUDE.
2. APPLY MAXIMUM POWER.
3. MONITOR RADIO ALTIMETER FOR TREND TOWARD TERRAIN CONTACT AND ADJUST PITCH ATTITUDE ACCORDINGLY UPWARD AS NECESSARY, HONORING PRE-STALL BUFFET/WARNING.
4. CONTINUE MAXIMUM CLIMB STRAIGHT AHEAD UNTIL ALL VISUAL AND AURAL WARNINGS CEASE.
5. ADVISE ATC AS NECESSARY.

If in VMC during the day:

1. EVALUATE FLIGHT PATH WITH RESPECT TO TERRAIN.
2. TAKE ACTION AS NECESSARY TO RECOVER SAFE TERRAIN CLEARANCE.

14 INFLIGHT ACTIVATION OF GPWS ALERTS/CAUTIONS:

Sundstrand recommends:

MODE 3	"DON'T SINK"
Condition	Descent after take-off
Action	Level wings and immediately establish positive rate of climb.

MODE 4	"TOO LOW GEAR"
Condition	Insufficient terrain clearance, or Landing Gear NOT DOWN and LOCKED below 500 feet AGL.
Action	EXECUTE GO-AROUND if proper terrain clearance or Landing Gear position cannot be IMMEDIATELY verified.
MODE 4	"TOO LOW FLAPS"
Condition	Insufficient terrain clearance, or Flaps NOT in Landing Configuration below 170 feet AGL.
Action	EXECUTE GO-AROUND if proper terrain clearance or Flap position cannot be immediately verified.

MODE 5	"GLIDESLOPE"
Condition	Aircraft is well BELOW Glideslope on ILS Approach and LESS THAN 925 feet AGL.
Action	IMMEDIATELY CLIMB TO RE-ESTABLISH PROPER GLIDEPATH -OR- EXECUTE GO-AROUND PROCEDURE.

NOTE:

If conducting a back course approach with false fly-up glideslope indications, or if in day, VMC, and intentionally flying below glideslope is required, this warning may be cancelled manually by depressing the amber BELOW G/S warning lamp/switch.

MODE 6	"BANK ANGLE"
Condition	Aircraft angle of bank is excessive for AGL altitude.
Action	Decrease angle of bank toward wings level.
MODE 6	"MINIMUMS-MINIMUMS"
Condition	This is a Radio Altimeter setting used as a BACK UP and is NOT to supplant approved Barometric Minimum Descent Altitude (MDA) or Decision Height (DH).
Action	EXECUTE GO-AROUND IF: Runway is NOT in sight, and/or aircraft has NOT reached the Barometric MDA or DH altitude.

15 ADDITIONAL GPWS MK-VI INFORMATION:

1. STALL WARNING INHIBIT FUNCTION: If installed, the MK-VI GPWS will NOT take precedence over aircraft stall warnings. Thus, if an aircraft stall warning is in progress, GPWS warnings will not be heard. Once aircraft stall warnings have ceased, GPWS warnings would be heard if appropriate.

2. TCAS II INHIBIT FUNCTION: If your aircraft is equipped with a TCAS II system, the MK-VI GPWS should have its TCAS II inhibit function enabled. In a case where both systems would provide an aural message at the same time, the GPWS will override the TCAS message, ONLY during actual GPWS aural outputs. At pauses between GPWS voice outputs, or at conclusion of GPWS messages, TCAS II messages will be heard normally. ***(Statistically, an aircraft is over NINE TIMES MORE LIKELY TO HAVE A CFIT ACCIDENT THAN A MID-AIR COLLISION.)***